WHAT IS CLAIMED IS:

1. A method of fabricating a surface acoustic wave device comprising the steps of:

(a) joining a supporting substrate to a second surface of a piezoelectric substrate opposite to a first surface thereof;

(b) grinding and polishing the first surface of the piezoelectric substrate;

(c) grinding and polishing a third surface of the supporting substrate opposite to another surface thereof to which the second surface of the piezoelectric substrate is joined; and

(d) forming, on the first surface of the piezoelectric substrate, an on-chip pattern including comb-like electrodes and electrode pads.

2. The method as claimed in claim 1, wherein:

the step (d) forms the on-chip pattern so as to have patterns arranged two-dimensionally; and

the method further comprises a step of cutting a joined substrate having grinded and polished supporting substrate and piezoelectric substrate into parts each of which parts has a respective one of the patterns arranged two-dimensionally.

3. The method as claimed in claim 2, further comprising the steps of:

housing each of the parts into a respective cavity formed in a first substrate; and

sealing the respective cavity with a second substrate.

4. The method as claimed in claim 3, the step of sealing comprises a step of subjecting at least one of joining surfaces of the first and second substrates to a surface activation process that uses ion beams,

neutralized high-energy atom beams, or plasma of inert gas or oxygen prior to joining.

5. The method as claimed in claim 1, further comprising a step (e) of joining the piezoelectric substrate to a first substrate having a cavity in which the on-chip pattern is housed so that the on-chip pattern can be hermetically sealed with the first substrate.

6. The method as claimed in claim 5, wherein the step (c) is performed after the step (e).

7. The method as claimed in claim 1, wherein the step (d) forms the on-chip pattern so as to have patterns arranged two-dimensionally; and

the method further comprises the steps of:

joining the piezoelectric substrate to a first substrate having cavities arranged two-dimensionally, each of which cavities houses a respective one of the patterns of the on-chip pattern; and

cutting the piezoelectric substrate, the supporting substrate and the first substrate into individuals each of which has a corresponding one of the cavities.

8. The method as claimed in claim 7, further comprising a step of etching the first substrate so as to form grooves at cutting positions at which the step of cutting are carried out.

9. The method as claimed in claim 5, further comprising a step of subjecting at least one of joining surfaces of the first substrate and the piezoelectric substrate to a surface activation process that uses ion beams, neutralized high-energy atom beams, or plasma of inert gas or oxygen prior to joining.

10. The method as claimed in claim 1, further comprising a step of subjecting at least one of joining surfaces of the piezoelectric substrate and the supporting substrate to a surface activation process that uses ion beams, neutralized high-energy atom beams, or plasma of inert gas or oxygen prior to joining.

11. The method as claimed in claim 1, wherein the supporting substrate is a silicon substrate.

12. The method as claimed in claim 1, wherein the supporting substrate is made of silicon having a resistivity of 100 Ω·m or greater.

13. The method as claimed in claim 1, wherein the piezoelectric substrate contains, as a major component, one of lithium tantalate and lithium niobate.

14. A surface acoustic wave device comprising:

a piezoelectric substrate having a first surface on which an on-chip pattern including comb-like electrodes and electrode pads is formed; and

a supporting substrate joined to a second surface of the piezoelectric substrate opposite to the first surface thereof,

at least one of the first surface of the piezoelectric substrate and a third surface of the supporting substrate opposite to a fourth surface thereof joined to the second surface of the piezoelectric substrate is a grinded and polished surface.

15. The surface acoustic wave device as claimed in claim 14, wherein at least one of the second surface

of the piezoelectric substrate and the fourth surface of the supporting substrate has been subjected to a surface activation process.

16. The surface acoustic wave device as claimed in claim 14, further comprising:

a first substrate having a cavity that houses the piezoelectric substrate and the supporting substrate joined thereto; and

a second substrate that hermetically seals the cavity.

17. The surface acoustic wave device as claimed in claim 14, further comprising a first substrate having a cavity that houses the on-chip pattern, the first substrate being joined to the piezoelectric substrate so that the on-chip pattern is housed in the cavity.